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SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF

This application is a DIV of 10/189,935, 7/3/2002 PAT. 6,686,228 which is a CON of 09/535,635, 3/28/2000 PAT. 6,475,836

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a semiconductor device having a circuit in which a thin film transistor (hereinafter referred to as TFT) is formed on a substrate having an insulating surface, and to a manufacturing method thereof. More particularly, the present invention relates to an electro-optical device typically known as a liquid crystal display device provided with an excellent-shaped contact hole, and to electronic equipment with an electro-optical device. Moreover, the semiconductor device according to the present invention refers to all equipment utilizing the semiconductor characteristics for functioning. The above electro-optical device and the electronic equipment with an electro-optical device are also included in semiconductor devices.

2. Description of the Related Art

The development of a semiconductor device having a large-area integrated circuit formed by the TFT (thin film transistor) on its insulating surface is under progression. AN active matrix liquid crystal display device, an EL display device, a contact-type image sensor, and the like are known as representative examples.

The characteristics of the TFT are deteriorated and reliability is lowered when organic resin film is directly formed on the TFT provided on the insulating surface. To solve those problems, conventionally, a laminated organic resin film is formed on the TFT after the formation of an inorganic insulating film (also called passivation film).

The TFT is normally connected to wirings through a